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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,285	07/17/2003	Gerald L. Larson	D5058-DIV	2494
30410	7590	01/14/2004	EXAMINER	
INTERNATIONAL TRUCK INTELLECTUAL PROPERTY COMPANY, 4201 WINFIELD ROAD P.O. BOX 1488 WARRENVILLE, IL 60555			TIBBITS, PIA FLORENCE	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,285

Applicant(s)

LARSON, GERALD L.

Examiner

Pia F Tibbits

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office action is in answer to the divisional application and the preliminary amendment filed July 17, 2003: claims 1-15 are canceled, and claims 16-18 are considered.

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 31 and 37. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 139. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example:
 - a) on page 5 of the specification, element 21 is described as a "charging regulator", as well as a "voltage regulator", while the drawings show a "cont. volt. regulator".
 - b) on page 5 of the specification, the statement "Vehicle electrical system 10 further includes power systems an alternator 15 and voltage regulators 16, 21 and 22 which regulate the voltage on subsidiary electrical systems" lacks proper punctuation.
 - c) on page 5 of the specification, element 16 is described as a "transmission controller", as well as a "voltage regulator".

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d) the specification on page 6 describes that "Engine control voltage regulator 17 provides power to fuel injectors 37", while on page 7 it describes "current sensors 31 and 37".

e) the language of the disclosure has to match the language of the claims in order to facilitate understanding of the instant application.

Appropriate correction is required.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed: a "vehicle battery charging system" does not describe what the claims recite.

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter: an electrical system controller **including** data processing capacity, an algorithm for dynamically setting a control signal value, a voltage regulator for setting the voltage on selected electrical subsystems independently of the other electrical subsystems, a second battery set connected to provide power at a different voltage than the first battery set, etc. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16: "an electrical system controller **including** data processing capacity" is confusing since it is not described as such in the specification. The specification describes that there is an engine controller and autonomous controllers, and that "for each autonomous controller there is a defined set of variables used for communications between the autonomous controller and other data processing components on the network or attached to the network". In

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other words, the data processing components are located on the network or attached to the network, but not included in the electrical system controller/engine controller itself. Additionally, "data processing" was interpreted to mean communicating information data based on the present battery detected parameters to the data processing circuitry of the controller.

the recitation "dynamically setting a control signal value" is confusing since it is not clear how a control signal has a value, and how it could be "set" dynamically. The "algorithm for dynamically setting a control signal value" is not described in the specification, and is only mentioned in the abstract. To continue prosecution it was assumed that the algorithm is part of the battery charging management program which aims to keep the battery fully charged, as well as controlling the charging regimen, to extend battery service life beyond that normally seen, as disclosed in the specification.

Claim 17: the recitation "a voltage regulator for setting the voltage on selected electrical subsystems independently of the other electrical subsystems." is confusing since "a voltage regulator for setting the voltage on selected electrical subsystems independently of the other electrical subsystems." is not described in the specification, and is only mentioned in the abstract. To continue prosecution it was assumed that each voltage regulator sets the voltage for a specific voltage system.

Claim 18: the recitation "a second battery set connected to provide power at a different voltage than the first battery set" is confusing since the disclosure describes both sets of batteries sharing the same charging regulator and input/output charge/discharge current lines, and a common temperature sensor.

The above are but a *few* specific examples of indefinite and functional or operational language used throughout the claims, and are only intended to illustrate the extensive revision required to overcome the rejection under 35 USC 112, second paragraph. The above-mentioned corrections therefore, are in no way a complete and thorough listing of every indefinite and functional or operational language used throughout the claims. Applicant is required to revise all

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of the claims completely, and not just correct the indefinite and functional or operational language mentioned. The following art rejections are given in view of the above rejections of claims under 35 USC 112, second paragraph. Therefore, the following art rejections are applied only as far as the claims are understood in view of rejections made under the first and second paragraphs of 35 USC 112.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 16-18, as best as it can be understood at this time, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Norton** [4723079] in combination with **Farley** [5767659].

As to claim 16, Norton discloses in fig.1 a vehicle electrical system, comprising: a battery set 12 having a grounded terminal and an ungrounded terminal; an electrical system controller 78; a charging regulator 24 having an output connected to the ungrounded terminal of the battery and a control input; an electrical power generator 10 connected to energize the charging regulator; and a current sensor 42 and conductors 48 and 52 coupled to a terminal of the battery for providing signals relating to current drawn and supplied to the battery. Norton does not disclose a program utilizing battery temperature, battery temperature rate of change and measured current discharged as inputs to an algorithm for dynamically setting a control signal value and means for applying the control signal to the control input of the charging regulator [see also column 4, lines 44-68, column 5, lines 1-4].

Farley discloses in fig.3 a program, including an algorithm, executed by a processor 38, utilizing the battery discharge current, and the magnitude of the discharge current with

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temperature in order to improve the accuracy of the stored battery charge state information [see also column 2, lines 37-51, column 5, lines 14-17, column 10, lines 1-28, column 14, lines 42-46]. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Norton's apparatus and include a processor running a program, including an algorithm, in the controller, as disclosed by Farley, in order to improve the accuracy of the stored battery charge state information and to avoid such a temperature-dependent irreversible deterioration of the battery.

As to claim 17: Norton clearly discloses a high voltage regulator 18, an intermediate voltage regulator 24, and a low voltage regulator 28 which provide power to high voltage, intermediate voltage, and low voltage circuitry in the vehicle [see also column 3, lines 34-64].

With regard to the limitation of having each voltage regulator setting the voltage for a specific voltage system, it is an inherent function of the low, intermediate and high-voltage regulators, disclosed by Norton, to function independently, and MPEP 2100 states that the disclosure of a limitation may be expressed, implicit or **inherent**.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, as best as it can be understood at this time. The prior art cited in PTO-892 and not mentioned above disclose related apparatus, as best as it can be understood at this time: **Kruse et al.** [4845465] discloses a 12 V D.C. power supply applied to an automotive vehicle electrical lighting system. **Watanabe et al.** [5982152] discloses a battery charging apparatus including a temperature sensor/temperature detecting means 16 providing information to a vehicle Electric Control Unit 32 comprising a microcomputer which comprises a CPU (Central Processing Unit), and a timer (time measuring means) for measuring time. After the step S36, a charging completion decision process is carried out in a step S37. The charging completion decision process in the step S37 decides whether the battery 12 is fully charged or not by comparing a rate of increase in the battery temperature ($\Delta T_b/\Delta t$: temperature change/unit time), a rate of

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increase in the battery voltage ($\Delta V_b/\Delta t$: voltage change/unit time), or a rate of change of their differential (secondary differential) with a stored pattern [see also fig. 2, and column 7, lines 40-47]. **Kwok** [6456042] discloses that as the SOC of a battery reaches the high range, at or near full charge, a charger provides "float" charging of the battery with a low voltage limit to minimize the effect of overcharging while continuously maintaining the high charge levels, as well as fast-charging a battery to a fully-charged state without incurring untoward battery damage as a result of out-gassing effects caused by overcharge potentials [see also column 11, lines 34-42].

Hutchings [5444352] discloses dual voltage lead acid storage batteries in a vehicle.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is (703) 308-7305. If unavailable, contact the Supervisory Patent Examiner Mike Sherry whose telephone number is (703) 308-1680.

12. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0956. Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Fax Center number is (703) 872-9306.

PFT

January 6, 2004


P. Tibbits

Patent Examiner